

Fei Wang

Contact **Email:** feiwang.cornell@gmail.com
Information **Address:** 425 E 61 Street. New York City. NY 10065
Homepage: <https://wcm-wanglab.github.io/index.html>

Overview Fei Wang is currently an Associate Professor of Health Informatics at Department of Population Health Sciences, Weill Cornell Medical College at Cornell University. He is also a field member of computer science at Cornell University. Dr. Wang's major research interest is health data science, where he is developing novel machine learning/AI models for healthcare problems such as risk prediction and disease subtyping. Dr. Wang has published more than 250 papers on top journals and conferences, which have received more than 17,000 citations so far. Dr. Wang's H-index is 64. He is also the recipient of the NSF CAREER Award and inaugural research leadership award from IEEE International Conference on Healthcare Informatics, as well as the Google faculty research award (2020) and Amazon AWS machine learning for research award (2017 and 2019). Dr. Wang was the elected chair for Knowledge Discovery and Data Mining Working Group under American Medical Informatics Association (AMIA) for the term 2019-2020 and he is a fellow of AMIA. Dr. Wang serves as the associate editor for several prestigious journals. Dr. Wang's research has attracted multi-million dollar support from NSF, NIH, ONR, MJFF, etc.

Education **Tsinghua University**, Beijing, P. R. China

Ph.D., Department of Automation, July 2, 2008

- Dissertation Title: "Graph-based Semi-supervised Learning"
- Advisor: Changshui Zhang

Xidian University, Xi'an, Xidian University, P. R. China

B.E., Automation, July, 2003

- Thesis Title: "An Athlete Training Support System Based on Visual C++"

Employment

- Associate Professor of Health Informatics. Department of Population Health Sciences (previous name Healthcare Policy and Research). Weill Cornell Medical College. Cornell University. Feb 2019 – Now.
- Graduate Field Member of Computer Science. School of Computing and Information Science. Cornell University. Sep 2019 – Now.
- Instructor. eMBA/MS Program on Healthcare Leadership. Cornell University (Jointly with Johnson School of Business and Weill Cornell Medical College). Feb 2019 – Now.
- Assistant Professor. Division of Health Informatics. Department of Healthcare Policy and Research. Weill Cornell Medical College. Cornell University. May 2016 – Jan 2019.

- Associate Professor. Department of Computer Science and Engineering, School of Engineering, University of Connecticut. Jan. 2015 – May 2016.
- Research Staff Member. IBM T. J. Watson Research Center. Apr. 2012 – Dec. 2014.
- Postdoctoral Researcher. IBM T. J. Watson Research Center. Jul. 2010 – Dec. 2011.
- Postdoctoral Researcher. Department of Statistical Science. Cornell University. Aug. 2009 – Jul. 2010.
- Postdoctoral Researcher. School of Computing and Information Science. Florida International University. Aug. 2008 – Jul. 2009.

Honors and Awards

- Informatics Implementation Distinguished Paper Award. AMIA Clinical Research Informatics Summit. 2021.
- Sanofi iDEA Award. 2021.
- Google Faculty Research Award. 2020.
- Best paper award. The First International Workshop on Deep Learning on Graphs: Methodologies and Applications (DLGMA'20) in conjunction with AAAI'20.
- Best paper published in 2018 in "AI in Health". IMIA Yearbook on Medical Informatics. 2019.
- Best paper published in 2018 in "Clinical Information System". IMIA Yearbook on Medical Informatics. 2019.
- Research Leadership Award. IEEE International Conference on Health Informatics (ICHI). 2019.
- OceanEx Faculty Research Award. 2019.
- Blue Ribbon Highlight. Movement Disorders Society International Congress (MDS). 2018.
- NSF CAREER Award. 2018.
- Amazon Machine Learning Research Award. 2019.
- NIPS 2017 Challenge on Classification of Clinically Actionable Genetic Variants winner.
- Amazon Machine Learning Research Award. 2017. 2019.
- ICDM 2016 Best Paper Award Runner-Up.
- 2016 Michael J. Fox Foundation The Parkinson's Progression Markers Initiative (PPMI) Data Challenge winner.
- ICHI 2016 Best Short Paper Award.
- ICDM 2015 Best Student Paper Award.
- SDM 2015 Best Research Paper Award Finalist.
- AMIA TBI 2014 Finalist for Marco Romani Distinguished Paper Award on Translational Bioinformatics.
- SDM 2011 Best Research Paper Award Finalist.
- ICDM 2010 Best Research Paper Award Honorable Mention.
- IBM Research Outstanding Technical Achievement Award, 2014.
- IBM Research Division Award, 2012 and 2013.
- IBM Research Invention Achievement: The 1st to 10th Plateau Award.

- IBM Research Level A Accomplishment Award.
- 2011 National Excellent Doctoral Thesis Award in China.

Projects

Current

- Identification of Mild Cognitive Impairment using Machine Learning from Language and Behavior Markers
 - Role: MPI
 - Agency: NIH NIA
 - Number: R01AG072449
 - Amount: \$3,889,902
 - Period: 04/01/2021–03/30/2026
- Deep Learning for Treatment Effect Estimation from RWD
 - Role: Sole PI
 - Agency: Sanofi
 - Amount: \$150,000
 - Period: 12/9/2020–07/01/2022
- Developing Suicide Risk Algorithms for Diverse Clinical Settings Using Data Fusion
 - Role: MPI
 - Agency: NIH NIMH
 - Number: R01MH124740
 - Amount: \$3,321,053
 - Period: 07/01/2020–06/30/2024
- Linking VA and non-VA data to study the risk of suicide in chronic pain patients
 - Role: Co-I
 - Agency: NIH NIMH
 - Number: R01MH121907
 - Amount: \$3,999,330
 - Period: 03/10/2020–08/31/2025
- Improving the Identification and Management of Suicide Risk among Patients Using Prescription Opioids
 - Role: Subcontract PI
 - Agency: NIH NIMH
 - Number: R01MH112148-03S1
 - Amount: \$853,369
 - Period: 07/01/2020–06/30/2022
- Subtyping Parkinson's Disease with Multi-Modal Data – Supplement

- Role: Sole PI
- Agency: Michael J. Fox Foundation
- Number: 14858.01
- Amount: \$399,140
- Period: 10/15/2019–6/14/2022

- CAREER: Interpretable Deep Modeling of Discrete Time Event Sequences
 - Role: Sole PI
 - Agency: NSF IIS
 - Number: 1750326
 - Amount: \$545,522
 - Period: 7/1/2018–6/30/2023

- Comparative Effectiveness of Metformin for Type 2 Diabetes with Chronic Kidney Disease
 - Role: Co-I
 - Agency: PCORI
 - Amount: \$1,981,382
 - Period: 01/15/2019–01/14/2022

- National Infrastructure for Standardized and Portable EHR Phenotyping Algorithms
 - Role: Co-I
 - Agency: NIH NIGMS
 - Number: R01GM105688
 - Amount (2017): \$745,771
 - Period: 09/01/2017–08/31/2022

Completed

- RAPID: Understanding the Transmission and Prevention of COVID-19 with Biomedical Knowledge Engineering
 - Role: Sole PI
 - Agency: NSF IIS
 - Number: 2027970
 - Amount: \$199,966
 - Period: 07/01/2020–06/31/2021

- TensorLEGO: Contextualized Tensor Analysis for Complex Data
 - Role: Sole PI
 - Agency: Office of Naval Research
 - Number: N00014-18-1-2585
 - Amount: \$743,465
 - Period: 3/1/2018–6/30/2021

- Effective Transfer Learning on Multi-Modal Multi-Resolution Temporal Sequences
 - Role: Sole PI
 - Agency: American Air Liquide Inc.
 - Amount: \$100,000
 - Period: 5/1/2019–4/30/2020

- Postdoctoral Fellowship Program
 - Role: Sole PI
 - Agency: Boehringer Ingelheim Pharmaceuticals, Inc.
 - Amount: \$100,000
 - Period: 10/15/2019–12/31/2020

- III: Small: Collaborative Research: Comprehensive Heterogeneous Response Regression from Complex Data
 - Role: Lead PI
 - Agency: NSF IIS
 - Number: 1716432
 - Amount: \$249,041
 - Period: 09/01/2017–08/31/2020

- Subtyping Parkinson's Disease with Multi-Modal Data
 - Role: Sole PI
 - Agency: Michael J. Fox Foundation
 - Number: 14858
 - Amount: \$149,417
 - Period: 1/1/2018–12/31/2018

- Data-Driven Subtyping of PD Patients in BioFIND Study
 - Role: Sole PI
 - Agency: Michael J. Fox Foundation
 - Number: 15914
 - Amount: \$94,014
 - Period: 6/1/2018–5/31/2019

- Integrative Patient Similarity Assessment for Subtyping mTBI Patients
 - Role: Subcontract PI
 - Agency: Naval Medical Research Center
 - Amount: \$100,000
 - Period: 10/1/2017–12/31/2018

- Improving the Identification of Patients at Risk of Suicide
 - Role: Site PI

- Agency: NIH NIMH
- Number: R01MH112148
- Amount: \$488,209 (Weill Cornell portion)
- Period: 07/01/2017–06/30/2020

- Improving Population Health through Data Analytics: Identifying High Cost, High Need Patients who would benefit from Care Coordination–Empire Clinical Research Investigator Program
 - Role: Co-I
 - Agency: New York State Department of Health
 - Amount: \$104,325
 - Period: 12/31/17–12/30/19

- Data Element Mapping Recommender Service for Cardiovascular Disease Research Studies
 - Role: Co-I
 - Agency: AHA
 - Amount: \$150,000
 - Period: 05/01/2017–04/30/2019

- EAGER: Patient Similarity Learning with Massive Clinical Data and Its Applications in Cohort Identification
 - Role: Sole PI
 - Agency: NSF IIS Smart and Connected Health Program
 - Number: 1650723
 - Amount: \$299,880
 - Period: 09/01/2016–08/31/2018

- Categorizing, Predicting and Managing High Utilizers
 - Role: Co-I
 - Agency: PCORI
 - Amount: \$1,198,778
 - Period: 07/01/2016–06/30/2018

- Integrative Clustering and Prediction Analysis for Personalized Cancer Genomics
 - Role: Co-PI
 - Agency: NIH (CTSC Seed Award)
 - Amount: \$42,505
 - Period: 09/05/2017–09/04/2018

- A General Framework to Account for Outcome Reporting Bias in Systematic Reviews
 - Role: site-PI
 - Agency: NIH NLM
 - Number: R01LM012607

- Amount: \$51,034
- Period: 09/08/2017–08/31/2018

Professional Memberships and Services

- Fellow of AMIA, since 2020.
- Elected Chair of KDDM Working Group. AMIA. 2019-2020.
- IEEE Member, since 2012. IEEE Senior Member, since 2015.
- INFORMS Member, since 2015.
- ACM Professional Member, since 2012.
- SIAM Member since 2013.
- AMIA Member, since 2013.

Publications

Google Scholar: [HTTPS://SCHOLAR.GOOGLE.COM/CITATIONS?USER=FJCBJDYAAAAJ&HL=EN](https://scholar.google.com/citations?user=FJCBJDYAAAAJ&hl=en)

Book Chapter

1. Liang Xiong, **Fei Wang**, Changshui Zhang. Guide Manifold Alignment by Relative Comparisons. Invited Chapter in Encyclopedia of Data Warehousing and Mining - 2nd Edition. To Appear.
2. **Fei Wang**. Social Networks in Healthcare, Case Study. Book Chapter in Encyclopedia of Social Network Analysis and Mining. Springer Verlag. 2013.
3. Jianying Hu, Adam Perer, and **Fei Wang**. Data Driven Analytics for Personalized Healthcare. In Healthcare Information Management Systems, pp. 529-554. Springer International Publishing, 2016.

Editorials

1. Robert Moskovitch, **Fei Wang**, Jian Pei and Carol Friedman. JASIST special issue on biomedical information retrieval. Journal of the Association for Information Science and Technology (**JAIST**), 68(11), pp.2525-2528. 2017.
2. Peng Cui, Huan Liu, Charu Aggarwal, **Fei Wang**. Online Behavioral Analysis and Modeling. **IEEE Intelligent Systems** 31(1): 2-4. 2016.
3. **Fei Wang**, Gregor Stiglic, Zoran Obradovic, Ian Davidson. Guest editorial: Special issue on data mining for medicine and healthcare. Data Mining and Knowledge Discovery (**DMKD**). July, vol. 29, no. 4, pp 867-870. 2015.
4. Peng Cui, **Fei Wang**, Hanghang Tong, Manuel Gomez-Rodriguez: 1st Workshop on Diffusion Networks and Cascade Analytics. Seventh ACM International Conference on Web Search and Data Mining (**WSDM**). 689-690. 2014.
5. **Fei Wang**, Hanghang Tong, Philip Yu, Charu Aggarwal. Guest Editorial: Special Issue on Data

- Mining Technologies for Computational Social Science. *Data Mining and Knowledge Discovery (DMKD)*. 25(3): 415-419 (2012).
6. **Fei Wang**, Peng Cui, Gordon Sun, Tat-Seng Chua, Shiqiang Yang. Guest Editorial: Special Issue for Information Retrieval for Social Media. **Information Retrieval**. vol. 15: 179-182. 2012.
 7. Naeem Ramzan, **Fei Wang**, Charalampos Z. Patrikakis, Peng Cui, Nikolaos D. Doulamis, Shiqiang Yang, Gordon Sun: ACM international workshop on social and behavioral networked media access (**SBNMA**). *ACM Multimedia 2011*: 611-612.
 8. Tao Li, Chris Ding, **Fei Wang**. Guest Editorial: Special Issue on Data Mining with Matrices, Graphs and Tensors. *Data Mining and Knowledge Discovery (DMKD)*. vol. 22, no. 3. 337-339. 2011.

Journals

1. Guan, Ivan, Maissa Trabilsy, Samantha Barkan, Ashwin Malhotra, Yu Hou, **Fei Wang**, Natalie Hellmers, Harini Sarva, and Claire Henchcliffe. Comparison of the Parkinson ' s KinetiGraph to Off/On Levodopa Response Testing: Single Center Experience. **Clinical Neurology and Neurosurgery** (2021): 106890.
2. Jie Xu, Wei Zhang, **Fei Wang**. A(DP)²SGD: Asynchronous Decentralized Parallel Stochastic Gradient Descent with Differential Privacy. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*. To Appear. 2021.
3. Matthew Brendel, Chang Su, Yu Hou, Claire Henchcliffe, **Fei Wang**. Comprehensive Subtyping of Parkinson ' s Disease Patients with Similarity Fusion: A Case Study with BioFIND Data. **npj Parkinson's Disease**. To Appear. 2021.
4. Wanwan Xu, Chang Su, Yan Li, Steven Rogers, **Fei Wang**, Kun Chen, Robert Aseltine. Improving Suicide Risk Prediction via Targeted Data Fusion: Proof of Concept Using Medical Claims Data. *Journal of American Medical Informatics Association (JAMIA)*. To Appear. 2021.
5. **Fei Wang**. Machine Learning for Predicting Rare Clinical Outcomes—Finding Needles in a Haystack. **JAMA Network Open**. 4.5 Pages: e2110738-e2110738. 2021.
6. Jingyuan Wang, Ke Tang, Kai Feng, Xin Lin, Weifeng Lv, Kun Chen, and **Fei Wang**. Impact of temperature and relative humidity on the transmission of COVID-19: a modelling study in China and the United States. **BMJ Open** 11, no. 2 (2021): e043863. (Cited by 530 times)
7. Yuantong Li, **Fei Wang**, Mengying Yan, Edward Cantu, Fan Nils Yang, Hengyi Rao, and Rui Feng. Peel Learning for Pathway-Related Outcome Prediction. **Bioinformatics**. btab402. 2021.
8. Chang Su, Yongkang Zhang, James H Flory, Mark G Weiner, Rainu Kaushal, Edward J Schenck, **Fei Wang**. Novel Clinical Subphenotypes in COVID-19: Derivation, Validation, Prediction,

- Temporal Patterns, and Interaction with Social Determinants of Health. **npj Digital Medicine**. To Appear. 2021. (Impact Factor: 11.653)
9. Zhaoyi Chen, Hansi Zhang, Yi Guo, Thomas J George, Mattia Prosperi, William R Hogan, Zhe He, Elizabeth A Shenkman, **Fei Wang**, Jiang Bian. Exploring the Feasibility of Using Real-World Data from a Large Clinical Data Research Network to Simulate Clinical Trials of Alzheimer's Disease. **npj Digital Medicine**. 4(1), 1-9. 2021. (Impact Factor: 11.653)
 10. Yi Guo, Yahan Zhang, Tianchen Lyu, Mattia Prosperi, **Fei Wang**, Hua Xu, and Jiang Bian. The Application of Artificial Intelligence and Data Integration in COVID-19 Studies: A Scoping Review. *Journal of American Medical Informatics Association (JAMIA)*. To Appear. 2021.
 11. Akhil Vaid, Suraj K Jaladanki, Jie Xu, Shelly Teng, Arvind Kumar, Samuel Lee, Sulaiman Soman, Ishan Paranjpe, Jessica K De Freitas, Tingyi Wanyan, Kipp W Johnson, Mesude Bicak, Eyal Klang, Young Joon Kwon, Anthony Costa, Shan Zhao, Riccardo Miotto, Alexander W Charney, Erwin Böttinger, Zahi A Fayad, Girish N Nadkarni, **Fei Wang**, Benjamin S Glicksberg. Federated Learning of Electronic Health Records to Improve Mortality Prediction in Hospitalized Patients With COVID-19: Machine Learning Approach. *JMIR Medical Informatics (JMI)*, 9(1), e24207. 2021.
 12. Yingxue Li, Wenxiao Jia, Junmei Wang, Jianying Guo, Qin Liu, Xiang Li, Guotong Xie, **Fei Wang**. ALeRT-COVID: Attentive Lockdown-awaRe Transfer Learning for Predicting COVID-19 Pandemics in Different Countries. *Journal of Healthcare Informatics Research (JHIR)*, 1-16. 2021.
 13. Yuqi Si, Jingcheng Du, Zhao Li, Xiaoqian Jiang, Timothy Miller, **Fei Wang**, W Jim Zheng, Kirk Roberts. Deep Representation Learning of Patient Data from Electronic Health Records (EHR): A Systematic Review. *Journal of Biomedical Informatics (JBI)*, 103671. 2021.
 14. Andrea Lee, Natalie Hellmers, Mary Vo, **Fei Wang**, Paul Popa, Samantha Barkan, Dylon Patel, Carter Campbell, Claire Henchcliffe, Harini Sarva. Can google glass™ technology improve freezing of gait in parkinsonism? A pilot study. **Disability and Rehabilitation: Assistive Technology**, 1-11. November 2020.
 15. Yadi Zhou, **Fei Wang**, Jian Tang, Ruth Nussinov, and Feixiong Cheng. Artificial intelligence in COVID-19 drug repurposing. **The Lancet Digital Health** 2, no. 12 (2020): e667-e676. (Impact Factor: 24.519)
 16. Chang Su, Jie Tong, and **Fei Wang**. Mining genetic and transcriptomic data using machine learning approaches in Parkinson's disease. **npj Parkinson's Disease** 6, no. 1 (2020): 1-10.
 17. Jie Xu, **Fei Wang**, Zhenxing Xu, Prakash Adekkanattu, Pascal Brandt, Guoqian Jiang, Richard C Kiefer, Yuan Luo, Chengsheng Mao, Jennifer A Pacheco, Luke V Rasmussen, Yiye Zhang, Richard Isaacson, Jyotishman Pathak. Data driven discovery of probable Alzheimer's disease and related dementia subphenotypes using electronic health records. **Learning Health Systems** 4, no. 4 (2020): e10246.

18. Pascal S Brandt, Richard C Kiefer, Jennifer A Pacheco, Prakash Adekkanattu, Evan T Sholle, Faraz S Ahmad, Jie Xu, Zhenxing Xu, Jessica S Ancker, **Fei Wang**, Yuan Luo, Guoqian Jiang, Jyotishman Pathak, Luke V Rasmussen. Toward cross platform electronic health record driven phenotyping using Clinical Quality Language. **Learning Health Systems** 4, no. 4 (2020): e10233.
19. Zhenxing Xu, **Fei Wang**, Prakash Adekkanattu, Budhaditya Bose, Veer Vekaria, Pascal Brandt, Guoqian Jiang, Richard C Kiefer, Yuan Luo, Jennifer A Pacheco, Luke V Rasmussen, Jie Xu, George Alexopoulos, Jyotishman Pathak. Subphenotyping depression using machine learning and electronic health records. **Learning Health Systems** Oct; 4(4): e10241. 2020.
20. Jianqiang Li, Liyang Xie, Yunshen Xie, and **Fei Wang**. Bregmannian consensus clustering for cancer subtypes analysis. *Computer Methods and Programs in Biomedicine* 189 (2020): 105337.
21. Liang, Jian, Ziqi Liu, Jiayu Zhou, Xiaoqian Jiang, Changshui Zhang, and **Fei Wang**. Model-Protected Multi-Task Learning. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* (2020). (Impact Factor: 16.389)
22. Daniel A Barone, **Fei Wang**, Lisa Ravdin, Mary Vo, Andrea Lee, Harini Sarva, Natalie Hellmers, Ana C Krieger, Claire Henchcliffe. Comorbid neuropsychiatric and autonomic features in REM sleep behavior disorder. **Clinical Parkinsonism & Related Disorders**. Volume 3, 2020, 100044.
23. Andrea Lee, Natalie Hellmers, Mary Vo, **Fei Wang**, Paul Popa, Samantha Barkan, Dylon Patel, Carter Campbell, Claire Henchcliffe, and Harini Sarva. Can google glass™ technology improve freezing of gait in parkinsonism? A pilot study. **Disability and Rehabilitation: Assistive Technology** (2020): 1-11.
24. Zhao, Sendong, Meng Jiang, Bing Qin, Ting Liu, Chengxiang Zhai, and **Fei Wang**. Structural and Textual Information Fusion for Symptom and Disease Representation Learning. *IEEE Transactions on Knowledge and Data Engineering (TKDE)* 2020.
25. Chang Su, Robert Aseltine, Riddhi Doshi, Kun Chen, Steven C. Rogers, and **Fei Wang**. Machine learning for suicide risk prediction in children and adolescents with electronic health records. **Translational Psychiatry**. 2020. Nov 26;10(1):413.
26. He S. Yang, Yu Hou, Ljiljana V. Vasovic, Peter Steel, Amy Chadburn, Sabrina E. Racine-Brzostek, Priya Velu, Melissa Cushing, Massimo Loda, Rainu Kaushal, Zhen Zhao, **Fei Wang**. Routine laboratory blood tests predict SARS-CoV-2 infection using machine learning. **Clinical Chemistry**. 2020. Nov 1;66(11):1396-1404.
27. Riddhi Doshi, Kun Chen, **Fei Wang**, Harold Schwartz, Al Herzog, Robert Aseltine. Identifying Risk Factors for Mortality among Patients Previously Hospitalized for a Suicide Attempt. **Scientific Reports**. 2020. Sep 16;10(1):15223.

28. Yongjun Zhu, Chao Che, Bo Jin, Ningrui Zhang, Chang Su, **Fei Wang**. Knowledge-driven drug repurposing using a comprehensive drug knowledge graph. **Health Informatics Journal**. 2020. Jul 17;1460458220937101.
29. Meen Chul Kim, Seojin Nam, **Fei Wang**, Yongjun Zhu. Mapping scientific landscapes in UMLS research: A scientometric review. *Journal of American Medical Informatics Association (JAMIA)*. 2020. Oct 1;27(10):1612-1624.
30. Xiang Li, Xiao Xu, Fei Xie, Xian Xu, Yuyao Sun, Xiaoshuang Liu, Xiaoyu Jia, Yanni Kang, Lixin Xie, **Fei Wang**, Guotong Xie. A Time-Phased Machine Learning Model for Real-time Prediction of Sepsis in Critical Care. **Critical Care Medicine**. 2020 Oct;48(10):e884-e888.
31. Fengyi Tang, Ikechukwu Uchendu, **Fei Wang**, Hiroko H. Dodge, Jiayu Zhou. Scalable diagnostic screening of mild cognitive impairment using AI dialogue agent. **Scientific Reports** 10, 5732. Nature Publishing Group. 2020.
32. Sendong Zhao, Chang Su, Zhiyong Lu, **Fei Wang**. Recent Advances in Biomedical Literature Mining. **Briefings in Bioinformatics**. 2020. To Appear. (Impact Factor: 11.622).
33. Chang Su, Zhenxing Xu, Jyotishman Pathak, **Fei Wang**. Deep learning in mental health outcome research: A scoping review. **Translational Psychiatry** 10, 116. Nature Publishing Group. 2020.
34. Zhenxing Xu, Jingyuan Chou, Xi Sheryl Zhang, Yuan Luo, Tamara Isakova, Prakash Adekkanattu, Jessica S. Ancker, Guoqian Jiang, Richard C. Kiefer, Jennifer A. Pacheco, Luke V. Rasmussen, Jyotishman Pathak, **Fei Wang**. Identifying Sub-Phenotypes of Acute Kidney Injury using Structured and Unstructured Electronic Health Record Data with Memory Networks. *Journal of Biomedical Informatics (JBI)*. 2020: 103361.
35. **Fei Wang**, Rainu Kausahl and Dhruv Khullar. Should Health Care Demand Interpretable Artificial Intelligence or Accept “Black Box” Medicine. **Annals of Internal Medicine**. 2020: 172(1):59-60. (Impact Factor: 25.391).
36. **Fei Wang**, and Anita Preininger. AI in Health: State of the Art, Challenges, and Future Directions. **Yearbook of medical informatics** 28, no. 01 (2019): 016-026.
37. Peter Z. Yan, **Fei Wang**, Nathaniel Kwok, Baxter B. Allen, Sotirios Keros, and Zachary Grinspan. Automated Spectrographic Seizure Detection Using Convolutional Neural Networks. **Seizure**. Jul 8;71:124-131. 2019.
38. Na Hong, Andrew Wen, Daniel J. Stone, Shintaro Tsuji, Paul R. Kingsbury, Luke V. Rasmussen, Jennifer A. Pacheco, Prakash Adekkanattu, **Fei Wang**, Yuan Luo, Jyotishman Pathak, Hongfang Liu, Guoqian Jiang. Developing a FHIR-Based EHR Phenotyping Framework: A Case Study for Identification of Patients with Obesity and Multiple Comorbidities from Discharge Summaries. *Journal of Biomedical Informatics (JBI)* 99 (2019): 103310.

39. Daniel Weber, Harini Sarva, Joshua Weaver, **Fei Wang**, Jingyuan Chou, Susannah Cornes, Katherine Nickels, Joseph Safdieh, Ann Poncelet, and Barney J. Stern. Current state of educational compensation in academic neurology: Results of a US national survey. **Neurology**. Jul 2;93(1):30-34. 2019.
40. **Fei Wang**, Lawrence Casalino, Dhruv Khullar. Artificial Intelligence Algorithms for Medical Prediction Should Be Nonproprietary and Readily Available—Reply. **JAMA Internal Medicine**. 179(5):731-732. 2019. (Impact factor 21.873)
41. Mengying Sun, Sendong Zhao, Coryandar Gilvary, Olivier Elemento, Jiayu Zhou, **Fei Wang**. Graph Convolutional Networks for Computational Drug Development and Discovery. **Briefings in Bioinformatics**. Volume 21, Issue 3, May 2020, Pages 919–935. (Impact factor 11.622)
42. Xu Min, Bin Yu, **Fei Wang**. Predictive Modeling of the Hospital Readmission Risk from Patients' Claims Data Using Machine Learning: A Case Study on COPD. **Scientific Reports**. Nature Publishing Group. Feb 20;9(1):2362. 2019.
43. Xi Zhang, Jingyuan Chou, Jian Liang, Cao Xiao, Yize Zhao, Harini Sarva, Claire Henchcliffe, **Fei Wang**. Data-Driven Subtyping of Parkinson's Disease Using Longitudinal Clinical Records: A Cohort Study. **Nature Scientific Reports**. 9(1), 797. 2019.
44. Chang Su, Jie Tong, Yongjun Zhu, Peng Cui, **Fei Wang**. Network Embedding in Biomedical Data Science. **Briefings in Bioinformatics**. Volume 21, Issue 1, January 2020, Pages 182–197. (Impact factor 11.622)
45. **Fei Wang**, Lawrence Casalino, Dhruv Khullar. Deep Learning in Medicine: Promise, Progress and Challenges. **JAMA Internal Medicine**. 179(3):293-294. 2019. (Impact factor 21.873)
46. Yuan Luo, Chengsheng Mao, Yiben Yang, **Fei Wang**, Faraz S. Ahmad, Donna Arnett, Marguerite R. Irvin and Sanjiv J. Shah. Integrating Hypertension Phenotype and Genotype with Hybrid Non-negative Matrix Factorization. **Bioinformatics**. Volume 35, Issue 8, 15 April 2019, Pages 1395–1403.
47. Bekhet, Laila R., Yonghui Wu, Ningtao Wang, Xin Geng, Wenjin Jim Zheng, **Fei Wang**, Hulin Wu, Hua Xu, and Degui Zhi. A study of Generalizability of Recurrent Neural Network-Based Predictive Models for Heart Failure Onset Risk using a Large and Heterogeneous EHR Data set. *Journal of Biomedical Informatics (JBI)* 2018 Aug; 84:11-16.
48. Chongliang Luo, Jian Liang, Gen Li, **Fei Wang**, Changshui Zhang, Dipak Dey, Kun Chen. Leveraging Mixed and Incomplete Outcomes via Reduced-Rank Modeling. *Journal of Multivariate Analysis (JMVA)*. Vol. 167, pp.378-394. 2018.
49. Jian Liang, Kun Chen, Ming Lin, Changshui Zhang, **Fei Wang**. Robust Finite Mixture Regression for Heterogeneous Targets. *Data Mining and Knowledge Discovery (DMKD)*. 1-52. 2018.

50. Fengyi Tang, Cao Xiao, **Fei Wang**, Jiayu Zhou. Predictive Modeling in Urgent Care: A Comparative Study of Machine Learning Approaches. **JAMIA Open**. 2018.
51. Xiping Hu, Jun Cheng, Mengchu Zhou, Bin Hu, Xin Jiang, Yi Guo, Kun Bai, and **Fei Wang**. "Emotion-aware cognitive system in multi-channel cognitive radio ad hoc networks." *IEEE Communications Magazine* 56, no. 4 (2018): 180-187. (**Impact factor 10.435**)
52. Cao Xiao, Tengfei Ma, Adji B. Dieng, David M. Blei, **Fei Wang***. Readmission Prediction via Deep Contextual Embedding of Clinical Concepts. **Plos ONE**. 13(4), p.e0195024. 2018. (**Best paper published in 2018 in "Clinical Information System". IMIA Yearbook on Medical Informatics. 2019.**)
53. Cao Xiao, Ying Li, Inci Baytas, Jiayu Zhou and **Fei Wang***. An MCEM Framework for Drug Safety Signal Detection and Combination from Heterogeneous Real World Evidence. **Nature Scientific Reports**, 8(1), p.1806. 2018.
54. Junghye Lee, Jimeng Sun, **Fei Wang**, Shuang Wang, Chi-Hyuck Jun, Xiaoqian Jiang. Privacy-Preserving Patient Similarity Learning in a Federated Environment. *JMIR Medical Informatics (JMI)*, Apr 13;6(2):e20. 2018. (**Best paper published in 2018 in "AI in Health". IMIA Yearbook on Medical Informatics. 2019.**)
55. Yongjun Zhu, Olivier Elemento, Jyotishman Pathak, **Fei Wang**. Drug knowledge bases and their applications in biomedical informatics research. **Briefings in Bioinformatics**. 2019 Jul 19;20(4):1308-1321. (**Impact factor 11.622**)
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Patents Granted

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2. **Fei Wang**, and Jun Wang. Indexing of Large Scale Patient Set. U.S. Patent 9,355,105, issued May 31, 2016.
3. Geetika T. Lakshmanan, Szabolcs Rozsnyai, and **Fei Wang**. Iterative Refinement of Pathways Correlated with Outcomes. U.S. Patent 9,299,035, issued March 29, 2016.
4. Nan Cao, Ching-Yung Lin, **Fei Wang**, and Zhen Wen. Visualizing Conflicts in Online Messages. U.S. Patent 9,256,670, issued February 9, 2016.
5. Ching-Yung Lin, Hanghang Tong, and **Fei Wang**. Privacy-Aware On-Line User Role Tracking. U.S. Patent 8,775,335, issued July 8, 2014.
6. Jianying Hu, **Fei Wang**, Robert K. Sorrentino, and Shahram Ebadollahi. Assessing Practitioner Value in Multi-Practitioner Settings. U.S. Patent 8,620,690, issued December 31, 2013.
7. Shahram Ebadollahi, Jianying Hu, Martin S. Kohn, Noah Lee, Robert K. Sorrentino, Jimeng Sun, and **Fei Wang**. Mining Temporal Patterns in Longitudinal Event Data Using Discrete Event Matrices and Sparse Coding. U.S. Patent 8,583,586, issued November 12, 2013.
8. Shahram Ebadollahi, Jimeng Sun, and **Fei Wang**. System and Method for Composite Distance Metric Leveraging Multiple Expert Judgments. U.S. Patent 8,566,268, issued October 22, 2013.

Professional Activities

Conference/Workshop Chair/Co-Chair

- Health Day Co-Chair. ACM International Conference on Knowledge Discovery and Data Mining (KDD). 2021.
- Tutorial Chair. International Conference on Artificial Intelligence in Medicine (AIME). 2020.
- Health Day Co-Chair. ACM International Conference on Web Search and Data Mining (WSDM). 2020.

- Demo Co-Chair. ACM International Conference on Information and Knowledge Management (CIKM). 2019.
- General Co-Chair. IEEE International Conference on Health Informatics (ICHI). 2018.
- Program Co-Chair. IEEE/ACM International Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE). 2018.
- Track Chair. Health Data Science. International Congress on Medical Informatics (MedInfo). 2017.
- Publication Chair. The IEEE Conference on Connected Health: Applications, Systems and Engineering Technologies. 2016.
- Student Travel Award Co-Chair. The IEEE International Conference on Bioinformatics and Biomedicine (BIBM). 2015.
- Local Arrangement Co-Chair. The 15th IEEE International Conference on Data Mining (ICDM). 2015.
- Program Co-Chair. The 2015 IEEE International Conference on Health Informatics (ICHI). 2015.
- Program Co-Chair. SDM Workshop on Data Mining for Medicine and Healthcare (DMMH). 2013, 2014, 2015.
- Program Co-Chair, AMIA Workshop on Data Mining for Medical Informatics (DMMI), 2014, 2015.
- Program Co-Chair, KDD Workshop on Connected Health at Big Data Era (BigCHat), 2014, 2015.
- Program Co-Chair, ICDM 2014 Workshop on Biological Data Mining and Its Applications in Healthcare (BioDM), 2014, 2015.
- Program Co-Chair, CIKM 2014 Workshop on Interactive Mining for Big Data (ImBig), 2014
- Program Co-Chair, The Third IEEE/ASE International Conference on Big Data Science and Computing (BigDataScience), 2014.
- Program Co-Chair, ICDM Workshop on Mining and Understanding Big Data (BigMUD), 2013.
- Program Co-Chair. ICDM Workshop on Optimization Based Techniques for Emerging Data Mining Problems (OEDM), 2009, 2010, 2011.
- Program Co-Chair. ICDM Workshop on Data Mining Techniques for Computational Collective Intelligence (DMCCI), 2011.
- Program Co-Chair. KDD Workshop on Data Mining for Medicine and Healthcare (DMMH), 2011.
- Program Co-Chair. ACM MM Workshop on Social and Networked Media Access, 2011.
- Local Arrangement Co-Chair. The 8th International Conference on Machine Learning and Applications (ICMLA), 2009.
- Publicity Chair, KDD Workshop on Data Mining using Matrices and Tensors, 2009.

Senior Program Committee/Area Chair

- The American Medical Informatics Association Annual Symposium (AMIA 2017)
- AAAI Conference on Artificial Intelligence (AAAI 2020)
- The ACM International Conference on Knowledge Discovery and Data Mining (CIKM 2017-

2019)

- The ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2016, 2017, 2021)
- The IEEE International Conference on Data Mining (ICDM 2015, 2018, 2019)
- The International Joint Conference on Artificial Intelligence (IJCAI 2015, 2016)
- The SIAM Conference on Data Mining (SDM 2015, 2016)
- The IEEE International Conference on Health Informatics (ICHI 2014)

Program Committee

- Program Committee, The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD) 2013-2016
- Program Committee, The ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2012-2015, 2018, 2019
- Program Committee, The IEEE International Conference on Data Mining (ICDM) 2009, 2011-2014, 2016, 2020
- Program Committee, The SIAM International Conference on Data Mining (SDM) 2010-2014
- Program Committee, The International Conference on Machine Learning (ICML) 2014
- Program Committee, The IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2010, 2013
- Program Committee, The 23rd International Joint Conference on Artificial Intelligence (IJCAI) 2011, 2013
- Program Committee, The ACM International Conference on Knowledge Discovery and Data Mining (CIKM) 2013
- Program Committee, The Asian Conference on Machine Learning (ACML) 2010, 2011
- Program Committee, The Pacific-Rim Symposium on Image and Video Technology (PSIVT 2010)
- Program Committee, International Workshop on Knowledge Discovery Using Cloud and Distributed Computing Platforms (KDCloud 2010)
- Program Committee, The 2nd Workshop on Large-scale Data Mining: Theory and Applications (LDMTA) (in Conjunction with KDD 2010), 2010.
- Program Committee, The 9th International Conference on Machine Learning and Applications (ICMLA), 2010.
- Program Committee, The 20th International Conference on Pattern Recognition (ICPR), 2010.
- Program Committee, KDD Workshop on Data Mining using Matrices and Tensors, 2009.
- Program Committee, The 1st Asian Conference on Machine Learning, 2009.
- Technical Program Committee, IEEE International Joint Conference on Neural Networks, 2009.
- International Program Committee, The 6th International Conference on Informatics in Control, Automation and Robotics, 2009.
- International Program Committee, The 7th International Conference on Machine Learning and Applications, 2008.

- Technical Program Committee, IEEE World Congress on Computational Intelligence, 2006, 2008.
- Program Committee, KDD Workshop on Data Mining using Matrices and Tensors, 2008.
- International Program Committee, The 6th International Conference on Machine Learning and Applications, 2007.
- Technical Program Committee, IEEE International Joint Conference on Neural Networks, 2007.

Editorial Board and Guest Editor

- Founding Executive Editor. Science Partner Journal on Health Data Science. Since 2020.
- Associate Editor. Scientific Reports. Nature Publishing Group. Since 2019.
- Associate Editor. IEEE Transactions on Neural Networks and Learning Systems. Since 2018.
- Associate Editor. Journal of Health Informatics Research. Since 2017.
- Associate Editor. Smart Health. Since 2017.
- Associate Editor. Pattern Recognition. Since 2016.
- Associate Editor. Knowledge and Information Systems. Since 2016.
- Action Editor. Data Mining and Knowledge Discovery. Since 2016.
- Editorial Board. Journal of Data Mining and Knowledge Discovery. 2015-2016.
- Guest Editor. Journal of Biomedical Informatics Special Issue on Mining Temporal Biomedical Data. 2016.
- Guest Editor. JASIST Special Issue on Biomedical Information Retrieval. 2016.
- Guest Editor. IEEE Transactions on Big Data Special Issue on Analytics with Big Medical Data. 2015.
- Guest Editor. IEEE/ACM Transactions on Computational Biology and Bioinformatics Special Issue on Biological Data Mining and Its Applications in Healthcare. 2015.
- Guest Editor. ACM Transactions on Knowledge Discovery and Data Mining Special Issue on Connected Health at Big Data Era. 2015
- Guest Editor. Journal of Data Mining and Knowledge Discovery Special Issue on Data Mining for Medicine and Healthcare. 2014
- Guest Editor. Journal of Data Mining and Knowledge Discovery Special Issue on Data Mining Technologies for Computational Social Science, 2011
- Guest Editor. Journal of Information Retrieval Special Issue on Information Retrieval for Social Media, 2011
- Guest Editor. Journal of Data Mining and Knowledge Discovery Special Issue on Data Mining with Matrices, Graphs and Tensors, 2010

Journal Refree

- ACM Transactions on Sensor Networks
- ACM Transactions on Multimedia Computing Communications and Applications
- ACM Transactions on Knowledge Discovery from Data
- ACM Transactions on Information Science and Technology

- Annals of Internal Medicine
- Artificial Intelligence
- Bioinformatics
- BMC Medical Informatics and Decision Making
- BMC Bioinformatics
- BMJ Open
- Briefings in Bioinformatics
- Computational Intelligence
- Data Mining and Knowledge Discovery
- Frontiers of Computer Science in China
- IEEE Journal on Biomedical and Health Informatics
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Signal Processing
- IEEE Transactions on Neural Networks and Learning System
- IEEE Transactions on Big Data
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Information Forensics and Security
- IEEE Transactions on Systems, Man and Cybernetics. Part B
- Information Processing & Management
- Information Science
- International Journal of Pattern Recognition and Artificial Intelligence
- JAMA Internal Medicine
- JAMA Network Open
- JCI Insights
- Journal of Machine Learning Research
- Journal of American Medical Informatics Association
- Lancet Digital Health
- Scientific Reports
- Nature Medicine
- Nature Communications
- Nature Computational Science
- Neural Computing and Applications.
- Neural Processing Letters.
- Neurocomputing
- npj Digital Medicine
- Pattern Recognition
- Statistical Analysis and Data Mining
- Statistics in Medicine

- Translational Psychiatry
- World Wide Web Journal

Grant Review

- NIH 2020, 2021
- Fonds de recherche du Québec - Santé (FRQS), Canada, 2020
- NSF IIS 2010, 2014, 2016-2021
- PCORI 2021
- German Research Foundation DFG. 2016.
- Western Brain Institute. Canada. 2019.
- Hong Kong Research Grant Council. 2018-2020.
- Swiss National Science Foundation. 2019.
- Poland National Science Center. 2020.

Teaching

- Spring 2019, 2020. Health Data Analytics. eMBA/MS program on healthcare leadership.
- Spring 2020, 2021. Artificial Intelligence in Medicine. Master Students. WCM.
- Summer 2016-2019. Health Data Mining. Master Students. WCM.
- Spring 2015, 2016. Big Data Analytics. Cross listed for undergraduate and graduate students. UConn.
- Fall 2015. Data Structure. Undergraduate students. UConn.

Student/Postdoc Mentoring

1. Chang Su (Postdoc), Weill Cornell Medicine, 2018-2021. Multi-modal health data analysis. Now Tenure Track Assistant Professor of Health Informatics at Temple University.
2. Sendong Zhao (Postdoc), Weill Cornell Medicine, 2018-2020. Biomedical literature mining and NLP. Now Tenure Track Assistant Professor at Harbin Institute of Technology.
3. Xi Zhang (Postdoc), Weill Cornell Medicine, 2017-2020. Deep learning for EHR analysis. Now Tenure Track Associate Professor of Computer Science at Chinese Academy of Science.
4. Peter Yan (Neurology Fellow Co-Mentor), Weill Cornell Medicine, 2018-2019. Seizure prediction with EEG signals. Now Instructor at Harvard Medical School.
5. Yongjun Zhu (Postdoc), Weill Cornell Medicine, 2017-2018. Drug-centered biomedical knowledge graph construction. Now Assistant Professor of Library & Information Science/Data Science at Sungkyunkwan University.
6. Bijie Hao (Research Assistant), Weill Cornell Medicine, 2018. Drug response heterogeneity analysis. Now Data Scientist at Aetna.
7. Xu Min (Research Assistant), Tsinghua University, 2018. Predictive modeling with longitudinal claims data. Now Research Staff Member of IBM Research.
8. Xiao Qin (PhD Thesis Committee), Worcester Polytechnic Institute, 2016-2018. Clinical notes analysis with supervised topic modeling. Now Research Staff Member of IBM Research.

9. Lifang He (Postdoc), Weill Cornell Medicine, 2016-2017. Efficient Tensor Factorizations. Now Tenure Track Assistant Professor of Computer Science at Lehigh University.
10. Ioakeim Perros (Intern), Georgia Institute of Technology, 2016. Polyadic regression. Now Lead Machine Learning Scientist, HEALTH[at]SCALE.
11. Chao Shang (PhD Supervisor), University of Connecticut, 2015. Deep Learning on Graphs. Now Research Scientist at JD.com.
12. Chuanren Liu (Intern), Rutgers University, 2014. Temporal Phenotyping for Electronic Medical Records. Now Assistant Professor of Business in University of Tennessee.
13. Jiayu Zhou (Intern), Arizona State University, 2013. Feature Densification for Electronic Medical Records. Now Assistant Professor of Computer Science in Michigan State University.
14. Yuheng Hu (PhD Co-Mentor), Arizona State University, 2012. Aggregated Twitter Sentiment Analysis. Now Assistant Professor of Business in University of Illinois at Chicago.
15. Meng Jiang (PhD Co-Mentor), Tsinghua University, 2012. Social Recommendation. Now Assistant Professor of Computer Science at Notre Dame.
16. Mingdong Ou (PhD Co-Mentor), Tsinghua University, 2012. Heterogeneous Hashing.
17. Fanhua Shang (PhD Co-Mentor). Xidian University.2011. Semi-supervised Learning with Mixed Knowledge Information. Now Professor at Xidian University.
18. Noah Lee (Intern), Columbia University, 2010. Convolutional NMF for Clinical Pattern Discovery. Now Data Scientist at Facebook.
19. Liang Xiong (Master Co-Mentor), Carnegie Mellon University, 2009. Manifold Alignment. Now at Manager Facebook.